

CONTRIBUTIONS ON PALAEOZOIC FLORAS. 3

CORDAICLADUS ADAMSII (FEISTMANTEL) RIGBY COMB. NOV.

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(Text-fig. 1)

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Synopsis

Specimens from New South Wales described by Feistmantel under the name *Caulopteris Adamsi* are considered to be cordaitalean stems by analogy with stems from elsewhere.

CORDAICLADUS ADAMSII (Feistmantel) Rigby comb. nov.

1878. *Caulopteris* (?) *Adamsi* Feistmantel, *Palaeontographica*, Suppl. iii, p. 94, pl. xii, figs. 1, 2.
1883. *Caulopteris* (?) *Adamsi* Feistmantel, in Tenison Woods, *Proc. Linn. Soc. N.S.W.*, v. 7, p. 132-133.
1890. *Caulopteris Adamsi* Feistmantel, *Mem. geol. Surv. N.S.W.*, Palaeont. 3, p. 135-136, pl. xxi, figs. 1, 2.
1904. Caudex of *Glossopteris*, in Etheridge, *Rec. Aust. Mus.*, v. 5, pt. 1, p. 46-49, fig. 3.
1905. *Caulopteris? adamsi* Feistmantel, in Arber, *Cat. Brit. Mus., Glossopteris Flora*, p. 152-153.

Feistmantel (1878, 1890) placed three specimens in *Caulopteris* under a new specific name, *Adamsi*, largely because he had insufficient evidence to place them anywhere else. He was aware that the choice of the generic name *Caulopteris* may not have been without question. He figured two specimens, now housed in the Mining Museum, Sydney, that bore the following numbers (the figures refer to Plate XXI of Feistmantel, 1890): 2822—fig. 1, 2823—fig. 2. He did not figure a third specimen, 2824, which shows only an isolated leaf scar.

His figures accurately portray the specimens. Specimen 2822 is of two stems having prominent, widely spaced leaf scars, each with a large number of cicatrices. The scar at the lower right of Feistmantel's figure, on the thicker stem, is 25.5 mm. long, 9 mm. wide and has 9 cicatrices. Specimen 2823 is an isolated leaf scar. The same slab of rock also bears a thin *Phyllothea*. Specimen 2824 is also an isolated leaf scar, it is 17 mm. long, 5 mm. wide and has 8 cicatrices.

Etheridge (1904) figured and described a stem which he regarded as a caudex of *Glossopteris*. It was associated with leaves of *Glossopteris ampla* which he estimated "to have been, when perfect, at least two feet in length by one foot wide". Dana (1849) described the midrib of this species as "very stout and broad, $\frac{3}{4}$ to 1 inch at base". The assumption of the association of

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the leaves and the stem appears to have been quite reasonable from the material available to Etheridge. He differentiated between his specimen and the specimens described by Feistmantel as *Caulopteris Adamsi* only in the spacing of the leaf scars. To me the scars themselves appear identical. I have not seen Etheridge's specimen.

Arber (1905) discussed the specimens figured by Feistmantel (1878, 1890). He said "I am unable to see any resemblance in Feistmantel's figures to the European fern-stems included under *Caulopteris*, and I have no hesitation in saying that the attribution of these specimens to that genus is unjustified".

There the matter rested until Meyen (1962) pointed out that Angara *Cordaites* were borne on *Cordai cladus*. He considered most leaves previously placed in *Noeggerathiopsis* by Russian and Gondwana palaeobotanists to be *Cordaites*. Meyen (personal communication) is of the opinion that Feistmantel's specimens would be more accurately designated *Cordai cladus*, but had insufficient information to include this in print.

Although Grand'Eury (1877) had given a very detailed account dealing with *Cordaites* leaves growing attached to stems of *Cordai cladus*, the latter frequently similar to the stems of *Caulopteris Adamsi*, no one related the leaves of *Noeggerathiopsis* with this genus until Meyen (1962) presented his ideas. The thicker stem of specimen 2822 is proposed as the holotype.



Text-fig. 1. *Cordai cladus adamsii* (Feistmantel) Rigby *comb. nov.* from Burdekins Gap, N.S.W. Natural size.

Until comparatively recently it was thought that logs of *Dadoxylon* and other similar genera of gymnospermous wood, common in the Lower Gondwanas, were trunks of the tree that bore leaves of *Noeggerathiopsis*. This idea was dispelled by the publication of evidence that *Glossopteris* could not possibly be a fern (Plumstead, 1952). Plumstead (1958) pointed out that these numerous logs must have represented the trunk of the tree that bore *Glossopteris*, they could not possibly all represent the trunk of the plant that bore *Noeggerathiopsis* which was altogether not a common member of the flora.

Now there appear to be only five known specimens of Gondwana stems that were likely to have borne leaves of *Noeggerathiopsis*, and all come from the Newcastle District, New South Wales, the four listed above, and a fifth specimen from Burdekins Gap, shown on Text-fig. 1.

This specimen is a sandstone cast of a compressed stem. No plant tissue remains. The cast has poorly preserved impressions of the leaf scars clearly

visible on the obverse side (figured), and partly visible on the reverse side. In common with the other specimens, the leaf scars are very large. The extant species *Schizolobium parahyia* (Vell.) Toledo (Caesalpinioideae, ranging through much of the Tropical Americas) also has abnormally large leaf scars. These scars expand considerably after leaf fall until they are 10 cm. or more in width. I postulate that the same happened on stems of *Cordaicladus adamsii*, that the leaf scars on the fossil specimens are expanded scars, and do not represent the size of the scar at abscission.

The specimen is 48 mm. long and 22–24 mm. wide. There are six series of scars visible on the obverse face. Some scars extend for the full width of the stem. The largest and most distinct scar is 22 mm. wide and 15 mm. along the length of the stem. On an uncompressed stem, the original width would have been in the order of 36 mm. along the circular surface.

There are 7 or 8 cicatrices; the precise number is difficult to determine because of the preservation. Each cicatrix is oblong and may have a single depression towards its upper end—other than this, there is no indication of vasculature.

The scars are slightly asymmetrical, suggesting a spiral phyllotaxy of probably $\frac{5}{2}$. The thick stem in Feistmantel's specimen, 2822, also has a spiral phyllotaxy with a possible arrangement of $\frac{5}{2}$. It is impossible to postulate a phyllotaxy for Etheridge's specimen.

The scar outline is similar to that of *C. gibbosus*, but the cicatrix arrangement appears closer to that of *C. subschnorrianus*. No close relationship is indicated at lower than generic level.

Locality: The specimen formed part of a collection from the northern end of the type section of the Markwell Coal Measures, Burdekins Gap, near Karuah, New South Wales. The containing beds had been deposited in a fossil gully in the coal-measures. The collection is housed by the Department of Geology, University of Newcastle, N.S.W.

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References

- ARBER, E. A. N., 1905.—Catalogue of fossil plants of the Glossopteris Flora in the Department of Geology, British Museum, &c., lxxiv-225 pp., pl. 1-8. (London.)
- DANA, J. D., 1849.—In Wilkes' U.S. Exploring Expedition. Vol. X. Geology. Text & Atlas. (Philadelphia.)
- ETHERIDGE, R., Jr., 1904.—Further observations on the caudex of *Glossopteris*. *Rec. Aust. Mus.*, 5 (1): 46-49.
- FEISTMANTEL, O., 1878.—Palaeozoische und mesozoische Flora des östlichen Australiens. *Palaeontographica*, Suppl. 3 (3): 53-130.
- , 1890.—Geological and Palaeontological Relations of the Plant-bearing Beds of Palaeozoic and Mesozoic Age in Eastern Australia and Tasmania, &c. *Mem. geol. Surv. N.S.W.*, Palaeont. 3.
- GRAND'EURY, C., 1877.—Flore carbonifère du Department de la Loire et du centre de la France. *Mem. Acad. Sci. Inst. Nat.*, 24: 1-624.
- MEYEN, S. V., 1962.—Materialy k poznaniyu morfologii vegetativnogo pobega Angarskikh kordaitov. *Paleont. Zh.*, 1962 (2): 133-143.
- PLUMSTEAD, EDNA P., 1952.—Description of two new genera and six new species of fructification borne on *Glossopteris* leaves. *Trans. geol. Soc. S. Afr.*, 55: 281-328.
- , 1958.—The habit of growth of Glossopteridae. *Trans. geol. Soc. S. Afr.*, 61: 81-94.